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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/697,206	10/26/2000	Daniel E.H. Afar	G&C 129.21-US-U1	3714

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EXAMINER
DAVIS, MINH TAM B

ART UNIT	PAPER NUMBER
1642	21

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

S.M.

Office Action Summary	Application No.	Applicant(s)	
	09/697,206	AFAR ET AL.	
	Examiner	Art Unit	
	MINH-TAM DAVIS	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29,30,32 and 44-61* is/are pending in the application.

4a) Of the above claim(s) *46-49,52-55 and 58-61* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29,30,32,44,45,50,51,56 and 57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

RESTRICTION

In paper No:20, Applicant asserts that the species bladder cancer has been elected, and that no response has been received regarding the Declaration by Dr. Challita-Eid, which demonstrate that there is sufficient correlation between mRNA production and protein production, that detection of either would serve as a basis for diagnosis. In response to the Office action of paper No:16, Applicant submits a Declaration by Dr. Challita-Eid, asserting that mRNA production is an art recognized method of asserting that protein is produced, and with rare exception, production of mRNA is predictive of production of the corresponding protein. Applicant asserts that the pending claims are directed to measuring and comparing similar parameters of 20P2H8 gene expression between test biological sample and normal sample.

The submission of the Declaration by Dr. Challita-Eid is acknowledged.

Applicant's arguments are not found persuasive, because 20P2H8 mRNA and protein are structurally different, and detection of mRNAs would require different protocols than detection of a protein. The methods for detecting the level of 20P2H8 mRNA and protein are different methods using different method steps, reagents and/or dosages, and/or schedules used, response variables and criteria for success, and the

searches for the two methods are not co-extensive, and it would be a serious burden for the Examiner to examine the two methods together.

Concerning whether there is sufficient correlation between mRNA production and protein production, this issue is an enablement issue, and is not considered here.

The requirement is still deemed proper and is therefore made FINAL.

After review and reconsideration, species prostate, colon, colorectal, breast and lung cancers are rejoined with species bladder cancers.

Accordingly, claims 29-30, 32, 44-45, 50-51, 56-57, species detection of prostate, colon, breast, lung and bladder cancers, are examined in the instant application, wherein claims 29-30, 32, 44-45, 50-51, 56-57 are only examined to the extent of a method for identifying the presence of prostate, colon, breast, lung or bladder cancer, comprising detecting the mRNA level of 20P2H8 gene. Species dysregulated growth, neoplasm, cervical, kidney, stomach, skin, pancreatic, testicular and ovarian cancers are withdrawn from consideration, as being drawn to non-elected species.

INFORMATION DISCLOSURE STATEMENT

It is noted that although the PTO-1449 is present in the application file, the submitted references are missing and therefore could not be considered.

OBJECTION

1. Claims 29-30, 32, 44, 50 and 56 are objected to because part of claims 29-30, 32, 44, 50 and 56 are drawn to non-elected invention, i.e. a method for identifying the presence of cancer comprising detecting the "protein expression level" of 20P2H8 gene.

2. Figures 2 and 3C are objected to because it is not clear which of the bands is the mRNA of 20P2H8 gene, since there are many bands in a lane, and there are no molecular size standards in the figures.

Claim Rejections - 35 USC § 112, SECOND PARAGRAPH

Claims 29-30, 32, 44-45, 50-51, 56-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. Claims 29-30, 32, 44-45, 50-51, 56-57 are indefinite for the use of the language "20P2H8 gene" in claims 29-30, 32 44-45, 50-51, 56-57 as the sole means of identifying the claimed gene.

The specification discloses that the claimed invention relates to the gene, designated 20P2H8, which is overexpressed in cancers including cancer of the prostate (p.4, lines 14-15). No further disclosure concerning the definition of 20P2H8 is found in the specification.

The use of laboratory designation only to identify a particular gene renders the claim indefinite because different laboratories may use the same laboratory designations to define completely distinct genes. Amendment of the claims to include

physical and/or functional characteristics of "20P2H8 gene" which unambiguously define "20P2H8 gene" is required.

Further, the disclosure concerning 20P2H8 gene on page 4, lines 14-15 in the specification is not limiting, and thus the metes and bound of the claimed invention cannot be ascertained, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 112, FIRST PARAGRAPH, ENABLEMENT

Claims 29-30, 32, 44-45, 50-51, 56-57 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 29-30, 32, 44-45, 50-51, 56-57 are drawn to a method for identifying the presence of prostate, colon, breast, lung or bladder cancer comprising detecting the mRNA level of 20P2H8 gene in a biological sample or a test sample, wherein an alteration in or a difference in or an elevated mRNA level of 20P2H8 gene as compared to normal tissue sample diagnoses the presence of said cancer.

The specification discloses in figure 2A, and on page 5, lines 22-26, that using PCR, the mRNA of 20P2H8 gene is detected in normal prostate (lane 2 of figure 2A) and prostate cancer xenografts (lanes 3-5 of figure 2A). It seems that the level of the mRNA of 20P2H8 gene is the same in normal prostate, as compared to prostate cancer xenografts. The specification discloses in figure 3C and on page 6, lines 3-5) that using

Northern Blot, no detection of mRNA of 20P2H8 gene is found in the prostate (lane 1 of figure 3C), as compared to the presence of mRNA of 20P2H8 gene in prostate cancer xenografts (lanes 2-5 of figure 3C). No disclosure concerning which probe is used for Northern blot is found in the specification.

The specification also discloses in figure 6 an on page 6, lines 10-11, detection of mRNA of 20P2H8 gene in bladder, colon and lung cancer by PCR. No disclosure concerning the level of the mRNA of 20P2H8 gene in normal bladder tissues, using PCR, is found in the specification. Although figure 2B-C discloses the expression of the mRNA of 20P2H8 gene in colon and lung normal tissues, using PCR, the data in figure 2B-C could not be interpreted, because it is not clear which of the bands is the mRNA of 20P2H8 gene, since there are many bands in a lane, and there are no molecular size standards in the figures. The specification further discloses in figure 8, and on page 6, last paragraph bridging page 7, that using Northern Blot, no detection of mRNA of 20P2H8 gene is found in normal bladder or normal tissue adjacent to the bladder cancer (lanes 1-2 of figure 8), as compared to the presence of mRNA of 20P2H8 gene in bladder cancer (lanes 3 and 8 of figure 8).

The specification discloses that using dot blot, overexpression of the mRNA level of 20P2H8 gene in prostate and breast cancers is detected as compared to normal corresponding tissues (figure 9). .

One cannot extrapolate the teaching of the specification to the scope of the claims because there seems to be discrepancy in the results, depending on which method is used. For example, using PCR, there is no difference in the level of mRNA of

20P2H8 gene between normal prostate and prostate cancer, whereas using Northern blot, there is an overexpression of the mRNA of 20P2H8 gene in prostate and bladder cancer versus no expression of the mRNA of 20P2H8 gene in normal prostate and bladder tissues. Thus one would not know which method is reliable, and reflects the actual expression of the mRNA of 20P2H8 gene. Further, the results from the Northern blot and dot blot of prostate and bladder and breast cancer is questionable, in view of the fact that no probe specific for 20P2H8 gene for use in Northern blot or dot blot for detection of prostate, bladder and breast cancer is disclosed in the specification. Thus, it is questionable that the results from Northern blot or dot blot of prostate or bladder or breast cancer is specific for 20P2H8 gene, and the claimed Northern blot or dot blot results could detect a different gene than that detected by the PCR method (see 102 rejection below).

In view of the above, it would have been undue experimentation for one of skill in the art to practice the claimed invention as broadly as claimed.

Claim Rejections - 35 USC § 112, FIRST PARAGRAPH, SCOPE

1. If Applicant could overcome the above 112, first paragraph rejection, claims 29-30, 44-45, 50-51 are still rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for detecting prostate, colon, breast, lung or bladder cancer, comprising detecting the mRNA level of 20P2H8 gene, wherein an elevated mRNA level of 20P2H8 gene in corresponding cancer tissues, as compared to corresponding normal tissues, is indicative of the presence of prostate, colon, breast,

lung or bladder cancer, does not reasonably provide enablement for a method for detecting prostate, colon, breast, lung or bladder cancer, comprising detecting the mRNA level of 20P2H8 gene, wherein an "alteration" or a "difference" in the mRNA level of 20P2H8 gene in "a biological sample", as compared to normal tissues, is indicative of the presence of prostate, colon, breast, lung or bladder cancer. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claims 29-30, 44-45, 50-51 are drawn to a method for identifying the presence of prostate, colon, breast, lung or bladder cancer , comprising detecting the mRNA level of 20P2H8 gene in a biological or a test sample, wherein an alteration or a difference in the mRNA level of 20P2H8 gene as compared to normal tissue sample diagnoses the presence of dysregulated cellular growth, or neoplasm.

It is noted that alteration or difference in the level of 20P2H8 gene expression could be an increase or a decrease in the mRNA level of 20P2H8 gene expression, which are opposite from each other.

The specification only discloses an increase in the mRNA level of 20P2H8 gene in prostate, breast, and bladder cancers, as compared to normal corresponding tissues, *supra*.

Thus it is not clear how a decrease in the mRNA level of 20P2H8 gene expression, which is the opposite of an increase in the mRNA level of 20P2H8 gene expression, has any correlation with the claimed detected cancers.

Further, one would not expect that prostate, colon, breast, lung or bladder cancer could be detected by detecting alteration of the mRNA level of 20P2H8 gene in "any biological or any test sample", because expression of a gene in different tissues is independent of each other and cannot be predicted.

In view of the above, it would have been undue experimentation for one of skill in the art to practice the claimed invention as broadly as claimed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 29-30, 32, 44-45, 50-51, 56-57 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 9938972-A2.

Claims 29-30, 32, 44-45, 50-51, 56-57 are drawn to a method for identifying the presence of prostate, colon, breast, lung or bladder cancer comprising detecting the mRNA level of 20P2H8 gene (SEQ ID NO:1) in a biological sample or a test sample, wherein an alteration or a difference in the mRNA level of 20P2H8 gene as compared to normal tissue sample diagnoses the presence of said cancer.

WO 9938972-A2 teaches a sequence of SEQ ID NO:3624, which is 98% similar to the claimed SEQ ID NO:1, from nucleotide 1 to 599, as shown in MPSRCH sequence similarity search report (MPSRCH search report, 2002, us-09-697-206a-1.rng, pages 12-13). WO 9938972-A2 further teaches a method for detecting differentially expressed gene correlated with the cancerous state of a mammalian cells, such as colorectal cancer, breast cancer and lung cancer, comprising detecting the polynucleotide disclosed.

One would expect that the method taught by WO 9938972-A2 would also detect the claimed SEQ ID NO:1, and thus the method taught by WO 9938972-A2 seems to be the same as the claimed invention.

2. Claims 29-30, 32, 44-45, 50-51, 56-57 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,262,333 B1.

Claims 29-30, 32, 44-45, 50-51, 56-57 are drawn to a method for identifying the presence of prostate, colon, breast, lung or bladder cancer comprising detecting the mRNA level of 20P2H8 gene (SEQ ID NO:1) in a biological sample or a test sample,

wherein an alteration or a difference in the mRNA level of 20P2H8 gene as compared to normal tissue sample diagnoses the presence of said cancer.

US 6,262,333 B1 teaches a sequence of SEQ ID NO:380, which is 96% similar to the claimed SEQ ID NO:1, from nucleotide 1388 to 1726, as shown in MPSRCH sequence similarity search report, wherein SEQ ID NO:380 is overexpressed in cancer tissue (columns 45-46, column 70, and table 1, column 76) (MPSRCH search report, 2002, us-09-697-206a-1.rni, pages1-2). US 6,262,333 B1 further teaches a method for detecting cancer, using the disclosed polynucleotide.

One would expect that the method taught by US 6,262,333 B1 would also detect the claimed SEQ ID NO:1, and thus the method taught by US 6,262,333 B1 seems to be the same as the claimed invention.

Because the method of the prior art comprises the same method steps as claimed in the instant invention using the same composition, the claimed method is anticipated because the method will inherently lead to the claimed effects. See Ex parte Novitski 26 USPQ 1389 (BPAI 1993).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MINH-TAM DAVIS whose telephone number is 703-305-2008. The examiner can normally be reached on 9:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANTHONY CAPUTA can be reached on 703-308-3995. The fax phone numbers for the organization where this application or proceeding is assigned are 703-

872-9306 for regular communications and 703-872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0916.

MINH TAM DAVIS

April 17, 2003

ANTHONY C. CAPUTA
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